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गुणवत्ता प्रबन्धन — आर्थिक एवं वित्तीय लाभ प्राप्त करने हेतु मार्गदर्शी सिद्धांत

Indian Standard

QUALITY MANAGEMENT — GUIDELINES FOR REALIZING FINANCIAL AND ECONOMIC BENEFITS

ICS 03.120.10

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Quality Management Sectional Committee, MSD 2

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 10014 : 2006 'Quality management — Guidelines for realizing financial and economic benefits' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Quality Management Sectional Committee and approval of the Management and Systems Division Council.

This standard first published by ISO as ISO/TR 10014 : 1998 was adopted by Bureau of Indian Standards as SP 67 : 2000 'Guidelines for managing the economics of quality'. ISO/TR 10014 : 1998 has now been technically revised and, therefore, IS/ISO 10014 : 2006 supersedes SP 67 : 2000.

The intent of this standard is to improve the relationship of ISO 10014 with ISO 9000 series of International Standards and to include a new structure relating to the Quality Management principles. Also, the title and the scope has been revised to reflect the changes in the ISO 9000 series and to give guidance for performance improvement and realization of the aim of this standard.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

> Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

In the adopted standard, normative reference appears to ISO 9000 : 2005 'Quality management systems — Fundamentals and vocabulary', for which Indian Standard IS/ISO 9000 : 2005 exists which is identical to ISO 9000 : 2005.

In this adopted standard, informative references appear to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 9001 : 2000 Quality management systems — Requirements	IS/ISO 9001 : 2000 Quality management systems — Requirements (*second revision*)	Identical
ISO 9004 : 2000 Quality management systems — Guidelines for performance improvements	IS/ISO 9004 : 2000 Quality management systems — Guidelines for performance improvements (*fifth revision*)	do
ISO 10002 : 2004 Quality management — Customer satisfaction — Guidelines for complaints handling in organizations	IS/ISO 10002 : 2004 Quality management — Customer satisfaction — Guidelines for complaints handling in organizations	do
ISO 10007 : 2003 Quality management systems — Guidelines for configuration management	IS/ISO 10007 : 2003 Quality management systems — Guidelines for configuration management (*first revision*)	do
ISO 10015 : 1999 Quality management — Guidelines for training	IS/ISO 10015 : 1999 Quality management — Guidelines for training	do
ISO/TR 10017 : 2003 Guidance on statistical techniques for ISO 9001 : 2000	SP 68 : 2005 Guidance on statistical techniques for ISO 9001 : 2000 (*first revision*)	do

(*Continued on third cover*)

Introduction

This International Standard is addressed to top management. It provides guidelines for realizing financial and economic benefits through the effective application of eight quality management principles derived from ISO 9000:2005. These principles are subsequently referred to as "management principles" within the body of this standard. The intent of this document is to provide top management with information to facilitate effective application of management principles and selection of methods and tools that enable the sustainable success of an organization. A self-assessment is included as a gap analysis and prioritization tool (see Annex A).

This International Standard builds upon these interrelated management principles to develop processes that facilitate the realization of the organization's objectives.

The management principles are

a) customer focus,

b) leadership,

c) involvement of people,

d) process approach,

e) system approach to management,

f) continual improvement,

g) factual approach to decision making, and

h) mutually beneficial supplier relationships.

Adoption of these management principles is a strategic top management decision. It affirms the relationship between effective management and realization of financial and economic benefits. Deployment of appropriate methods and tools fosters the development of a consistent systematic approach for addressing financial and economic objectives.

Economic benefit is generally attained through effective management of resources and implementation of applicable processes for improving the overall worth and health of the organization. Financial benefit is the result of organizational improvement expressed in monetary form, and realized by cost-effective management practices within the organization.

Successful integration of the management principles relies on the application of the process approach and the Plan-Do-Check-Act (PDCA) methodology. This approach enables top management to assess requirements, plan activities, allocate appropriate resources, implement continual improvement actions and measure results in order to determine effectiveness. It allows top management to make informed decisions, whether they relate to the definition of commercial strategies, the development of a new product or the execution of financial agreements.

Financial and economic benefits that can result from the application of the management principles include

- improved profitability,
- improved revenues,
- improved budgetary performance,

— reduced costs,

— improved cash flow,

— improved return on investment,

— increased competitiveness,

— improved customer retention and loyalty,

— improved effectiveness of decision making,

— optimized use of available resources,

— heightened employee accountability,

— improved intellectual capital,

— optimized, effective and efficient processes,

— improved supply chain performance,

— reduced time to market, and

— enhanced organizational performance, credibility and sustainability.

This International Standard is applicable equally to organizations with products that include services, software, hardware and processed materials. It is relevant in both the public and private sector and can provide useful guidance regardless of the number of employees, diversity of product offerings, revenues, complexity of processes or number of locations. It also provides support to public and governmental organizations to facilitate sustainable economic growth and prosperity.

Indian Standard

QUALITY MANAGEMENT — GUIDELINES FOR REALIZING FINANCIAL AND ECONOMIC BENEFITS

1 Scope

This International Standard provides guidelines for realizing financial and economic benefits from the application of the ISO 9000 quality management principles

NOTE These are herein referred to as "management principles"

This International Standard is directed to top management of an organization and complements ISO 9004 for performance improvements It provides examples of achievable benefits and identifies management methods and tools that are available to assist with the achievement of those benefits

This International Standard consists of guidelines and recommendations, and is not intended for certification, regulatory or contractual use.

2 Normative references

The following referenced documents are indispensable for the application of this document For dated references, only the edition cited applies For undated references, the latest edition of the referenced document (including any amendments) applies

ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000 apply

NOTE 1 In ISO 9000:2005, the term **product** (3 4 2) is defined as the "result of a process", where **process** (3 4 1) is defined as "set of interrelated or interacting activities which transforms inputs into outputs" The term product encompasses four generic product categories services, software, hardware, and processed materials These terms are further described in ISO 9000

NOTE 2 Documents referenced outside the ISO 9000 family of standards might have terms and definitions that differ from those of ISO 9000

4 Structure of this standard

4.1 This International Standard is designed to assist top management identify and realize benefits by the application of the management principles To achieve financial and economic benefits, relevant processes have been identified for each principle, and examples of methods and tools have been provided to assist in the application of the principles.

The added value from the expected benefits should reflect the interrelationships between principles, processes and a holistic view of the organization and its interested parties

4.2 Clause 5 combines the process approach, the eight management principles and the Plan-Do-Check-Act (PDCA) methodology. This is reflected in the flowcharts found in 5.1 to 5.8, inclusive. The key selection tool to determine the most appropriate subclause for priority improvement action is self-assessment (see 4.3 and Annex A).

Examples of applicable methods and tools are presented within the Plan, Do and Check columns in each flowchart. The list of methods and tools shown in the Plan, Do and Check columns is not exhaustive, and users should select those most appropriate to their organization. Some methods and tools are utilized in more than one subclause indicating the interrelationship between principles.

The subclause on "Continual improvement" (5.6) illustrates how the PDCA approach can be effectively applied to top management's strategic planning and review process in order to realize and further improve financial and economic benefits. Subclause 5.6 is embedded within the Act column of all other subclauses in Clause 5.

The output from implementing the overall process is financial and economic benefits. The achievable benefits are examples and are not intended to be all inclusive. A generic representation of the overall process model for realizing financial and economic benefits is shown in Figure 1.

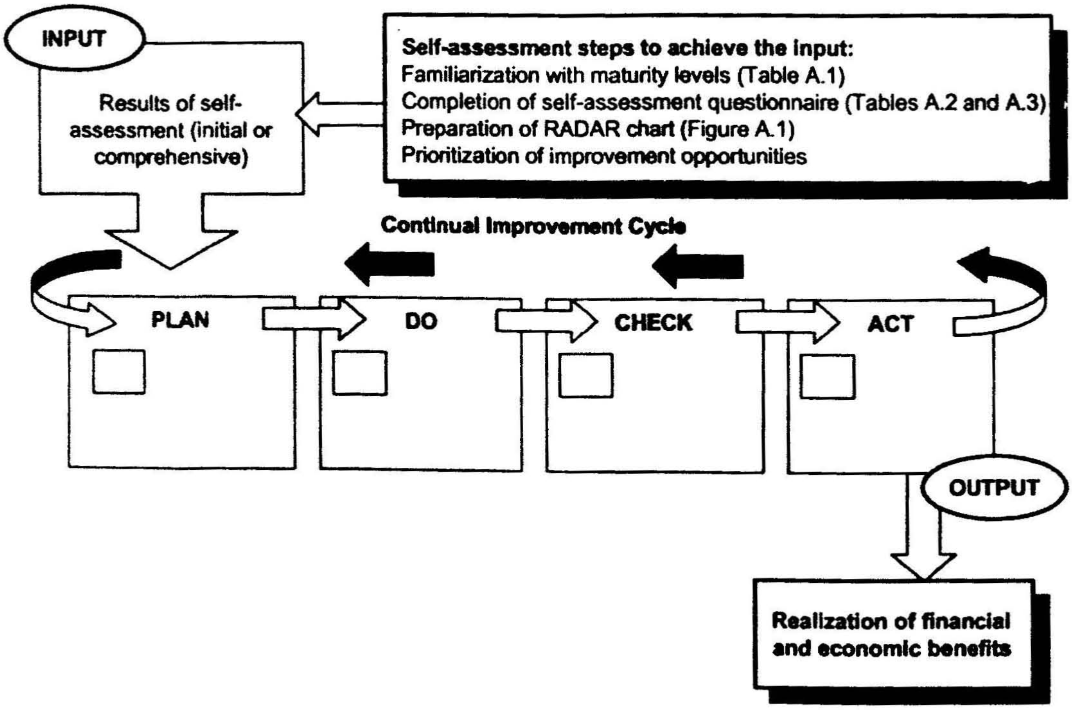

INPUT
Results of self-assessment (initial or comprehensive)
Self-assessment steps to achieve the input:
Familiarization with maturity levels (Table A.1)
Completion of self-assessment questionnaire (Tables A.2 and A.3)
Preparation of RADAR chart (Figure A.1)
Prioritization of improvement opportunities
Continual Improvement Cycle
PLAN
DO
CHECK
ACT
OUTPUT
Realization of financial and economic benefits

Figure 1 — Generic representation of the overall process

4.3 Prior to using the self-assessment questionnaires, the assessment team should familiarize themselves with the maturity level descriptions (Table A.1). The assessment team should first use the initial self-assessment questionnaire (Table A.2) to obtain a quick overview of the organization's maturity. This process should take approximately 1 h. The information gained improves the selection process for future self-assessments and should stimulate comparisons throughout the organization, across functions and between working levels. If the average maturity is found to be less than Level 3 for any particular principle, significant benefit should result when top management continues the assessment of that principle using the comprehensive self-assessment questionnaire (Table A.3).

4.4 When selected, the comprehensive self-assessment should be recognized as an important value-added milestone for the organization, worthy of the extra investment in time needed to complete it. Following the completion of a self-assessment questionnaire, a RADAR chart (Figure A.1) should be prepared that provides a pictorial view of the organization's maturity status. Continuing generation of RADAR charts provides an ongoing illustration of the organization's progress.

Value-added self-assessment relies for its integrity on objectivity, openness and the effective involvement of people during the evaluation of maturity levels. If there is a concern with respect to openness, consideration should be given to having a broad selection of employees complete the questionnaire anonymously.

4.5 Some common methods and tools are briefly presented in Annex B. Those listed are not intended to be all inclusive. It is recommended that top management further investigate the available methods and tools and implement those that reflect the specific needs of the organization.

5 Application of the management principles

5.1 Customer focus

"*Organizations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations.*" (ISO 9000:2005)

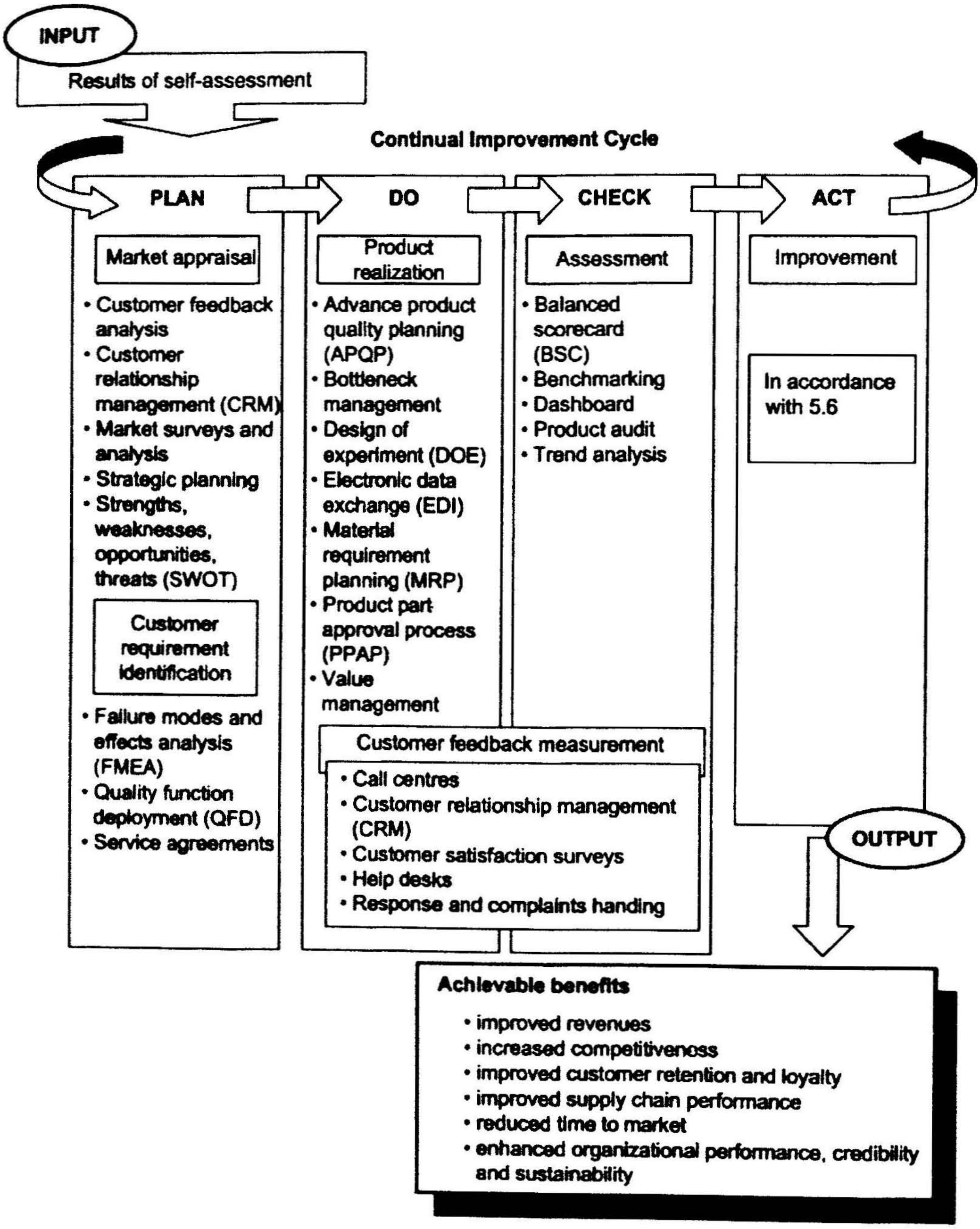

INPUT
Results of self-assessment
Continual Improvement Cycle
PLAN
DO
CHECK
ACT
Market appraisal
• Customer feedback analysis
• Customer relationship management (CRM)
• Market surveys and analysis
• Strategic planning
• Strengths, weaknesses, opportunities, threats (SWOT)
Customer requirement identification
• Failure modes and effects analysis (FMEA)
• Quality function deployment (QFD)
• Service agreements
Product realization
• Advance product quality planning (APQP)
• Bottleneck management
• Design of experiment (DOE)
• Electronic data exchange (EDI)
• Material requirement planning (MRP)
• Product part approval process (PPAP)
• Value management
Assessment
• Balanced scorecard (BSC)
• Benchmarking
• Dashboard
• Product audit
• Trend analysis
Improvement
In accordance with 5.6
Customer feedback measurement
• Call centres
• Customer relationship management (CRM)
• Customer satisfaction surveys
• Help desks
• Response and complaints handing
OUTPUT
Achievable benefits
• improved revenues
• increased competitiveness
• improved customer retention and loyalty
• improved supply chain performance
• reduced time to market
• enhanced organizational performance, credibility and sustainability

Figure 2 — Customer focus

5.2 Leadership

"Leaders establish unity of purpose and direction of the organization. They should create and maintain the internal environment in which people can become fully involved in achieving the organization's objectives." (ISO 9000:2005)

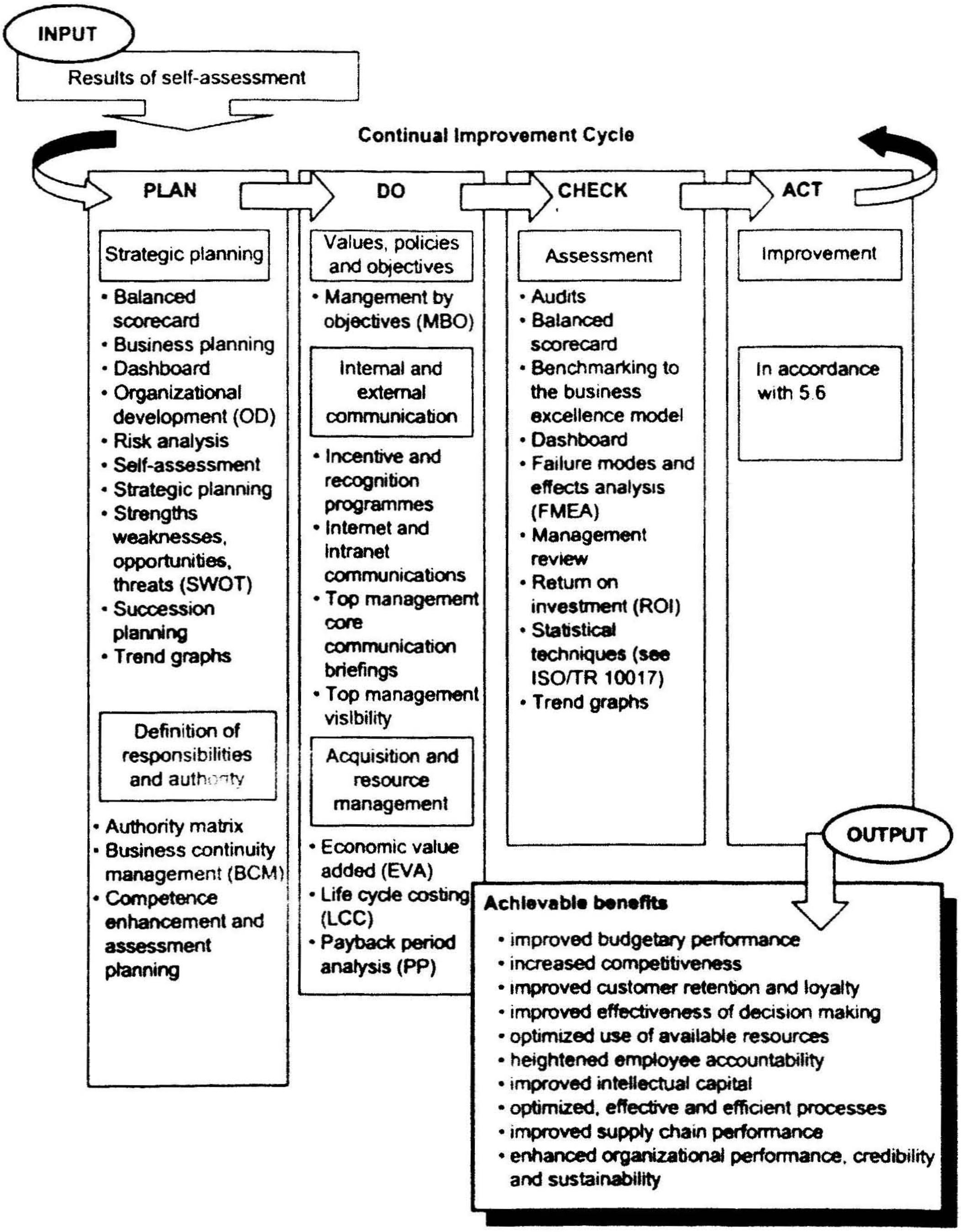

INPUT
Results of self-assessment
Continual Improvement Cycle
PLAN
DO
CHECK
ACT
Strategic planning
• Balanced scorecard
• Business planning
• Dashboard
• Organizational development (OD)
• Risk analysis
• Self-assessment
• Strategic planning
• Strengths weaknesses, opportunities, threats (SWOT)
• Succession planning
• Trend graphs
Definition of responsibilities and authority
• Authority matrix
• Business continuity management (BCM)
• Competence enhancement and assessment planning
Values, policies and objectives
• Mangement by objectives (MBO)
Internal and external communication
• Incentive and recognition programmes
• Internet and intranet communications
• Top management core communication briefings
• Top management visibility
Acquisition and resource management
• Economic value added (EVA)
• Life cycle costing (LCC)
• Payback period analysis (PP)
Assessment
• Audits
• Balanced scorecard
• Benchmarking to the business excellence model
• Dashboard
• Failure modes and effects analysis (FMEA)
• Management review
• Return on investment (ROI)
• Statistical techniques (see ISO/TR 10017)
• Trend graphs
Improvement
In accordance with 5.6
OUTPUT
Achievable benefits
• improved budgetary performance
• increased competitiveness
• improved customer retention and loyalty
• improved effectiveness of decision making
• optimized use of available resources
• heightened employee accountability
• improved intellectual capital
• optimized, effective and efficient processes
• improved supply chain performance
• enhanced organizational performance, credibility and sustainability

Figure 3 —Leadership

5.3 Involvement of people

"People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit." (ISO 9000:2005)

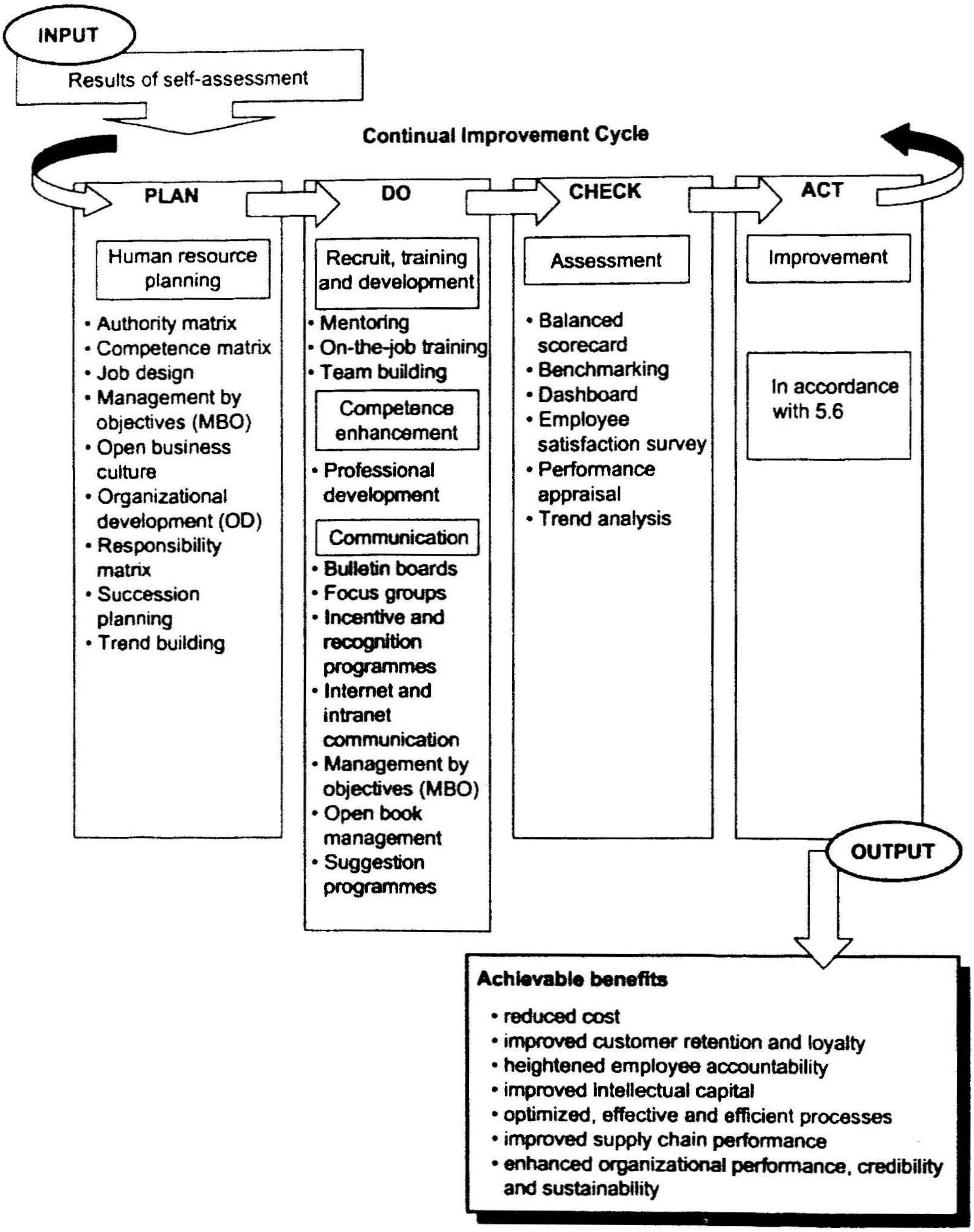
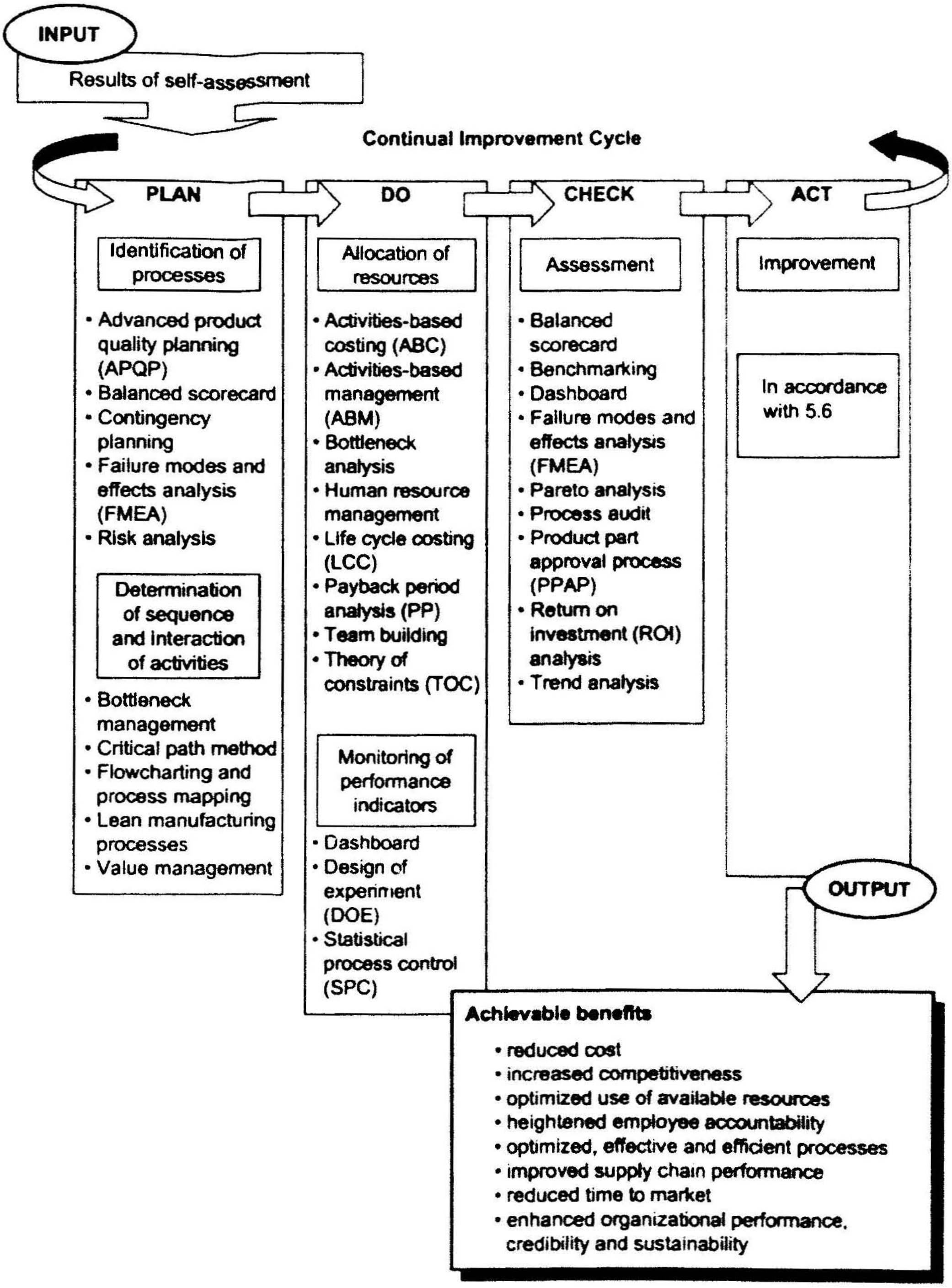

INPUT
Results of self-assessment
Continual Improvement Cycle
PLAN
DO
CHECK
ACT
Human resource planning
• Authority matrix
• Competence matrix
• Job design
• Management by objectives (MBO)
• Open business culture
• Organizational development (OD)
• Responsibility matrix
• Succession planning
• Trend building
Recruit, training and development
• Mentoring
• On-the-job training
• Team building
Competence enhancement
• Professional development
Communication
• Bulletin boards
• Focus groups
• Incentive and recognition programmes
• Internet and intranet communication
• Management by objectives (MBO)
• Open book management
• Suggestion programmes
Assessment
• Balanced scorecard
• Benchmarking
• Dashboard
• Employee satisfaction survey
• Performance appraisal
• Trend analysis
Improvement
In accordance with 5.6
OUTPUT
Achievable benefits
• reduced cost
• improved customer retention and loyalty
• heightened employee accountability
• improved intellectual capital
• optimized, effective and efficient processes
• improved supply chain performance
• enhanced organizational performance, credibility and sustainability

Figure 4 — Involvement of people

5.4 Process approach

"A desired result is achieved more efficiently when activities and related resources are managed as a process." (ISO 9000:2005)



PLAN

Identification of processes

- Advanced product quality planning (APQP)
- Balanced scorecard
- Contingency planning
- Failure modes and effects analysis (FMEA)
- Risk analysis

Determination of sequence and interaction of activities

- Bottleneck management
- Critical path method
- Flowcharting and process mapping
- Lean manufacturing processes
- Value management

DO

Allocation of resources

- Activities-based costing (ABC)
- Activities-based management (ABM)
- Bottleneck analysis
- Human resource management
- Life cycle costing (LCC)
- Payback period analysis (PP)
- Team building
- Theory of constraints (TOC)

Monitoring of performance indicators

- Dashboard
- Design of experiment (DOE)
- Statistical process control (SPC)

CHECK

Assessment

- Balanced scorecard
- Benchmarking
- Dashboard
- Failure modes and effects analysis (FMEA)
- Pareto analysis
- Process audit
- Product part approval process (PPAP)
- Return on investment (ROI) analysis
- Trend analysis

ACT

Improvement

In accordance with 5.6

Achievable benefits

- reduced cost
- increased competitiveness
- optimized use of available resources
- heightened employee accountability
- optimized, effective and efficient processes
- improved supply chain performance
- reduced time to market
- enhanced organizational performance, credibility and sustainability

Figure 5 — Process approach

5.5 System approach to management

"Identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives." (ISO 9000:2005)

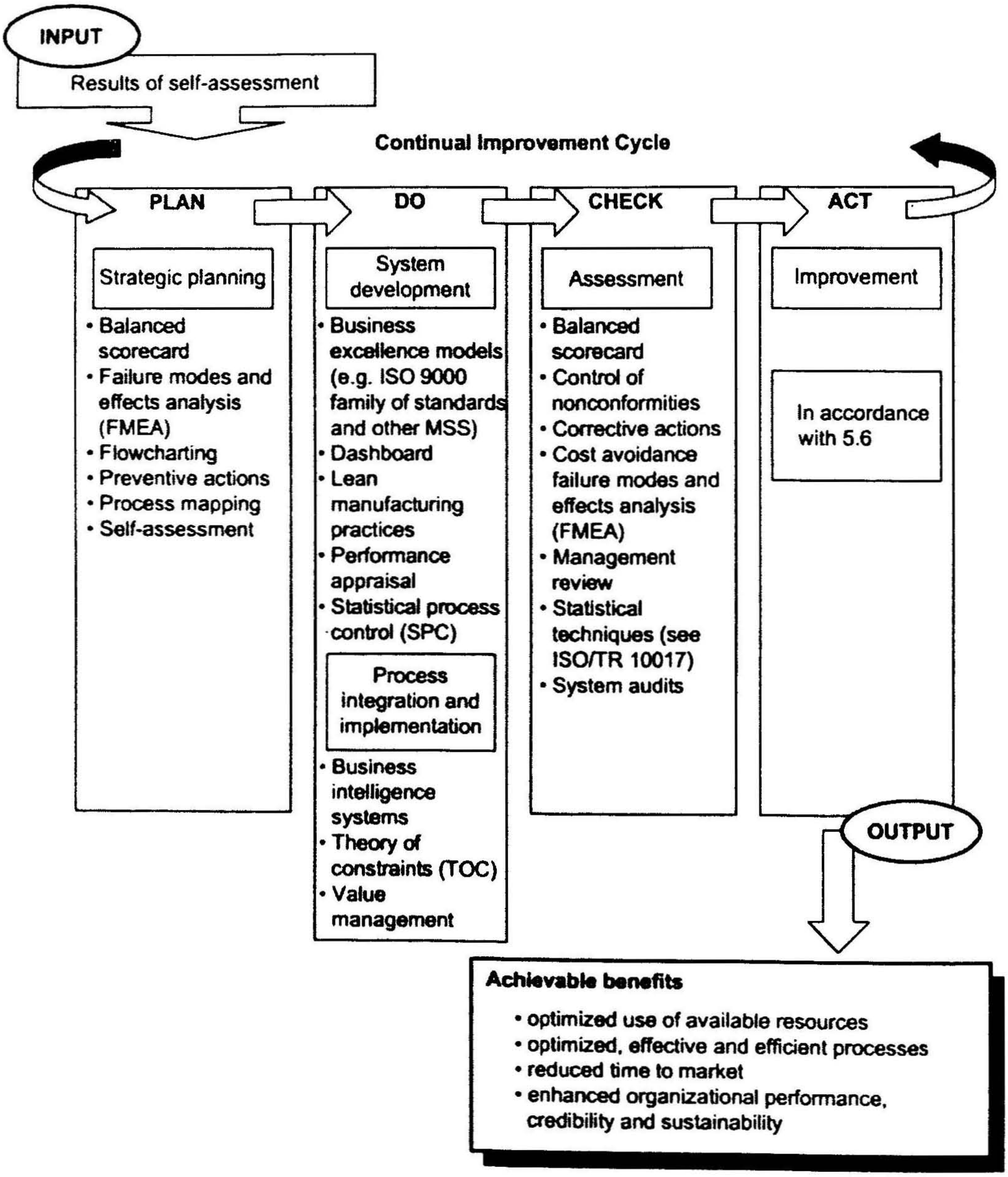

INPUT
Results of self-assessment
Continual Improvement Cycle
PLAN
DO
CHECK
ACT
Strategic planning
• Balanced scorecard
• Failure modes and effects analysis (FMEA)
• Flowcharting
• Preventive actions
• Process mapping
• Self-assessment
System development
• Business excellence models (e.g. ISO 9000 family of standards and other MSS)
• Dashboard
• Lean manufacturing practices
• Performance appraisal
• Statistical process control (SPC)
Process integration and implementation
• Business intelligence systems
• Theory of constraints (TOC)
• Value management
Assessment
• Balanced scorecard
• Control of nonconformities
• Corrective actions
• Cost avoidance failure modes and effects analysis (FMEA)
• Management review
• Statistical techniques (see ISO/TR 10017)
• System audits
Improvement
In accordance with 5.6
OUTPUT
Achievable benefits
• optimized use of available resources
• optimized, effective and efficient processes
• reduced time to market
• enhanced organizational performance, credibility and sustainability

Figure 6 — System approach to management

5.6 Continual improvement

"Continual improvement of the organization's overall performance should be a permanent objective of the organization." (ISO 9000 2005)

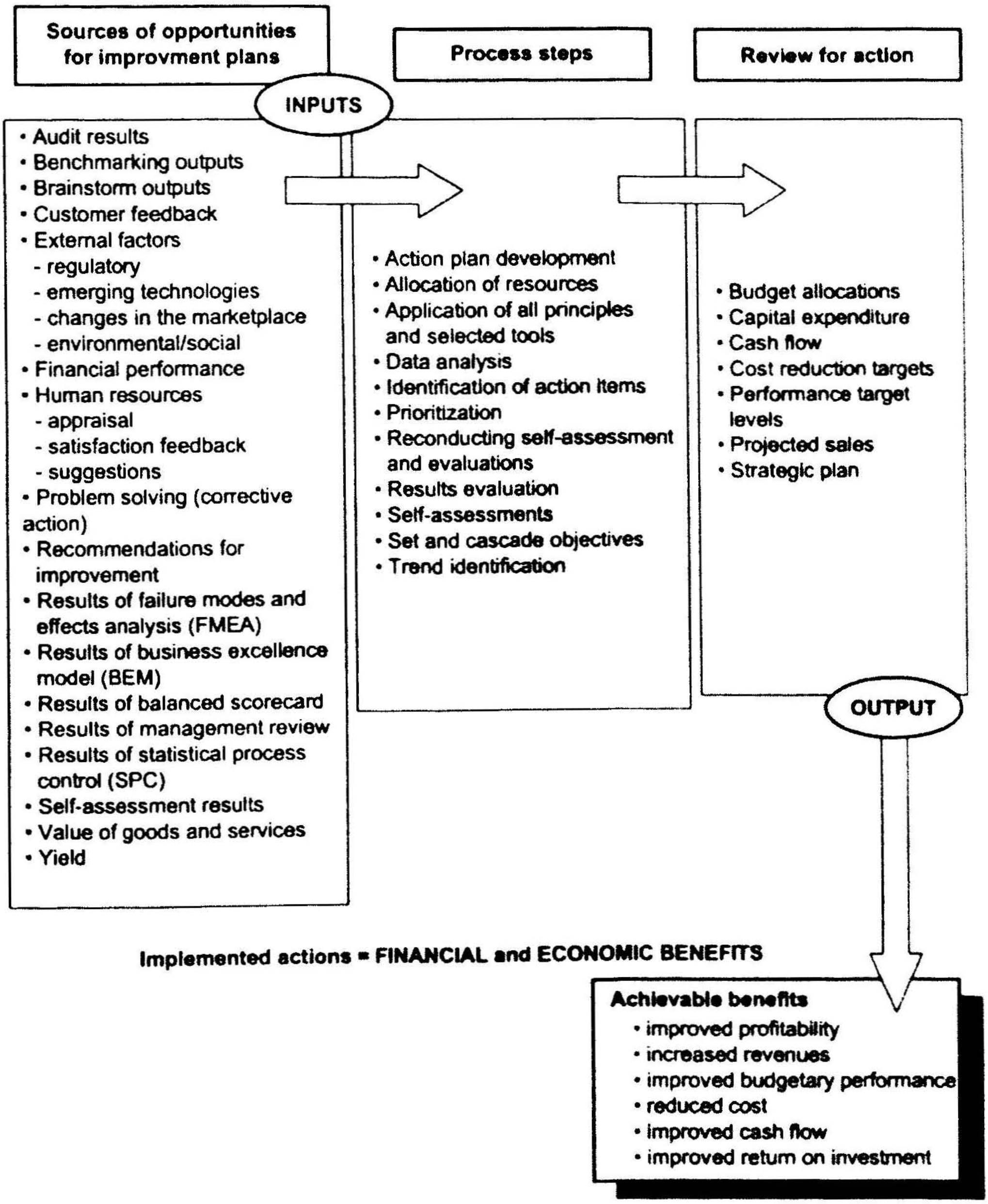

Sources of opportunities for improvment plans
Process steps
Review for action
INPUTS
• Audit results
• Benchmarking outputs
• Brainstorm outputs
• Customer feedback
• External factors
- regulatory
- emerging technologies
- changes in the marketplace
- environmental/social
• Financial performance
• Human resources
- appraisal
- satisfaction feedback
- suggestions
• Problem solving (corrective action)
• Recommendations for improvement
• Results of failure modes and effects analysis (FMEA)
• Results of business excellence model (BEM)
• Results of balanced scorecard
• Results of management review
• Results of statistical process control (SPC)
• Self-assessment results
• Value of goods and services
• Yield
• Action plan development
• Allocation of resources
• Application of all principles and selected tools
• Data analysis
• Identification of action items
• Prioritization
• Reconducting self-assessment and evaluations
• Results evaluation
• Self-assessments
• Set and cascade objectives
• Trend identification
• Budget allocations
• Capital expenditure
• Cash flow
• Cost reduction targets
• Performance target levels
• Projected sales
• Strategic plan
OUTPUT
Implemented actions = FINANCIAL and ECONOMIC BENEFITS
Achievable benefits
• improved profitability
• increased revenues
• improved budgetary performance
• reduced cost
• improved cash flow
• improved return on investment

Figure 7 — Continual improvement

5.7 Factual approach to decision making

"Effective decisions are based on the analysis of data and information." (ISO 9000:2005)

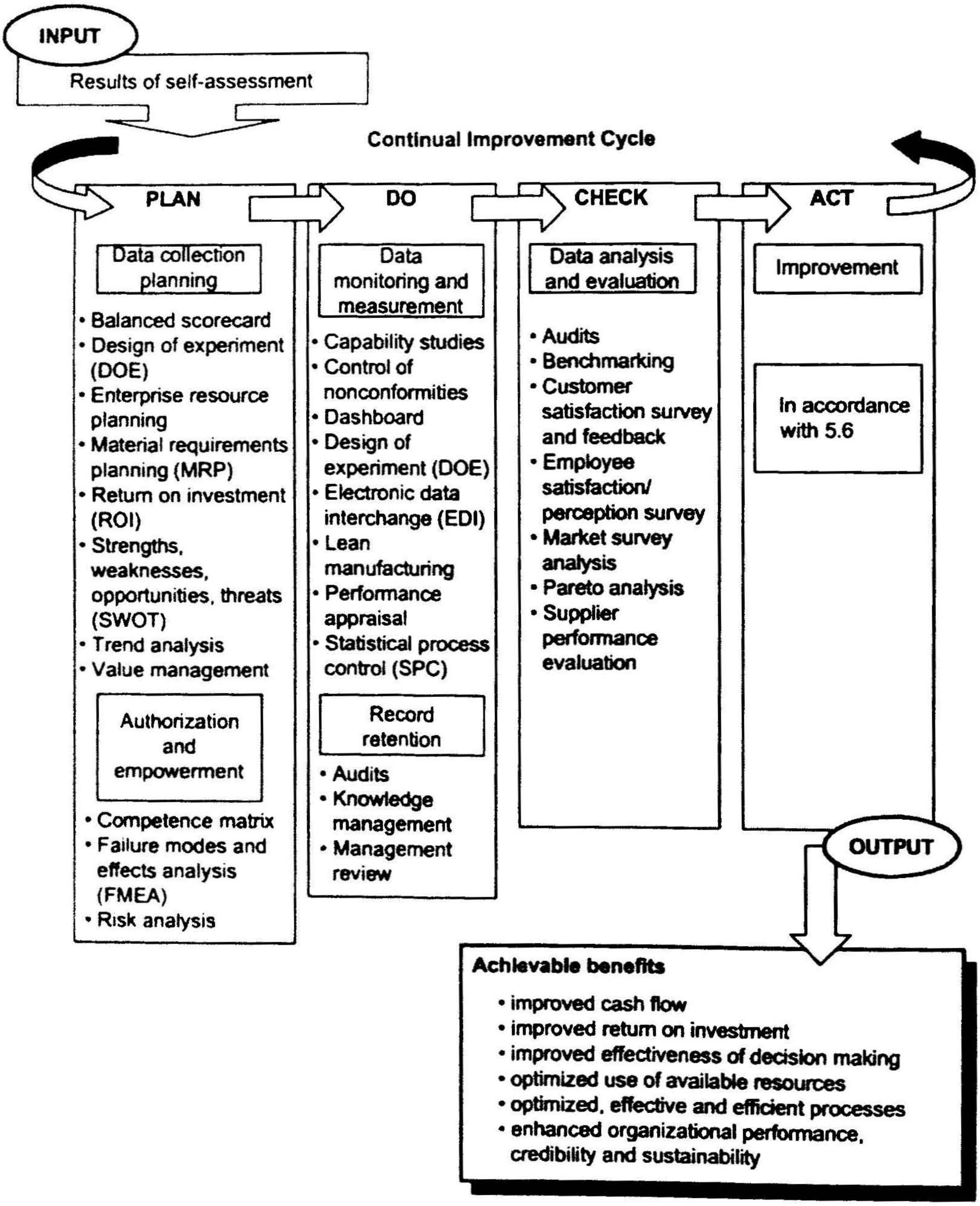

INPUT
Results of self-assessment
Continual Improvement Cycle
PLAN
DO
CHECK
ACT
Data collection planning
• Balanced scorecard
• Design of experiment (DOE)
• Enterprise resource planning
• Material requirements planning (MRP)
• Return on investment (ROI)
• Strengths, weaknesses, opportunities, threats (SWOT)
• Trend analysis
• Value management
Authorization and empowerment
• Competence matrix
• Failure modes and effects analysis (FMEA)
• Risk analysis
Data monitoring and measurement
• Capability studies
• Control of nonconformities
• Dashboard
• Design of experiment (DOE)
• Electronic data interchange (EDI)
• Lean manufacturing
• Performance appraisal
• Statistical process control (SPC)
Record retention
• Audits
• Knowledge management
• Management review
Data analysis and evaluation
• Audits
• Benchmarking
• Customer satisfaction survey and feedback
• Employee satisfaction/ perception survey
• Market survey analysis
• Pareto analysis
• Supplier performance evaluation
Improvement
In accordance with 5.6
OUTPUT
Achievable benefits
• improved cash flow
• improved return on investment
• improved effectiveness of decision making
• optimized use of available resources
• optimized, effective and efficient processes
• enhanced organizational performance, credibility and sustainability

Figure 8 — Factual approach to decision making

5.8 Mutually beneficial supplier relationships

"An organization and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value." (ISO 9000:2005)

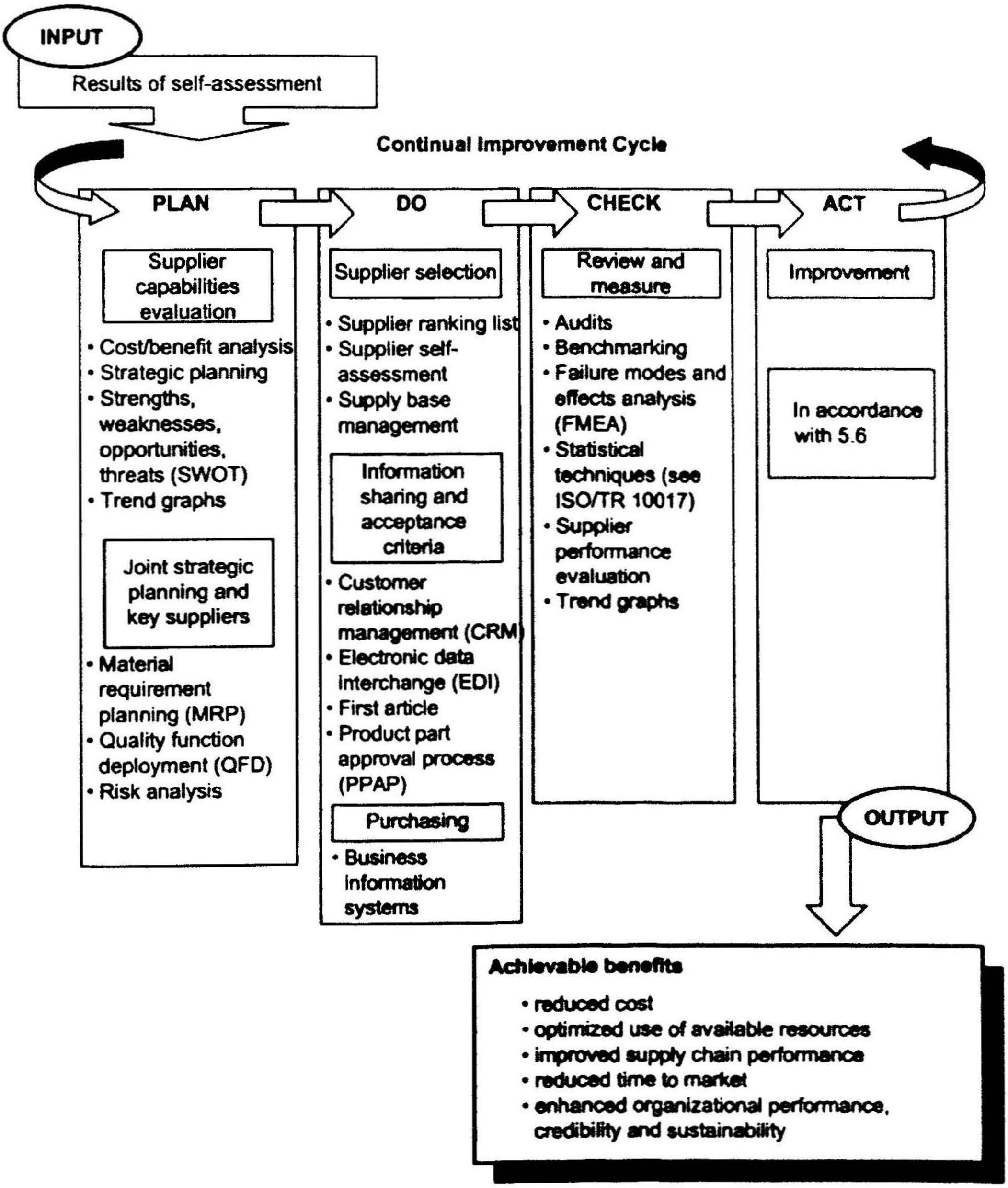

INPUT
Results of self-assessment
Continual Improvement Cycle
PLAN
Supplier capabilities evaluation
• Cost/benefit analysis
• Strategic planning
• Strengths, weaknesses, opportunities, threats (SWOT)
• Trend graphs
Joint strategic planning and key suppliers
• Material requirement planning (MRP)
• Quality function deployment (QFD)
• Risk analysis
DO
Supplier selection
• Supplier ranking list
• Supplier self-assessment
• Supply base management
Information sharing and acceptance criteria
• Customer relationship management (CRM)
• Electronic data interchange (EDI)
• First article
• Product part approval process (PPAP)
Purchasing
• Business information systems
CHECK
Review and measure
• Audits
• Benchmarking
• Failure modes and effects analysis (FMEA)
• Statistical techniques (see ISO/TR 10017)
• Supplier performance evaluation
• Trend graphs
ACT
Improvement
In accordance with 5.6
OUTPUT
Achievable benefits
• reduced cost
• optimized use of available resources
• improved supply chain performance
• reduced time to market
• enhanced organizational performance, credibility and sustainability

Figure 9 — Mutually beneficial supplier relationships

Annex A
(informative)

Self-assessment of implementation of management principles

A.1 Maturity level descriptions

Prior to use of self-assessment questionnaires, the assessment team should familiarize themselves with maturity level descriptions (Table A.1). When answering questions in Table A.2 or A.3, select the maturity level from Table A.1 that best reflects the status of the organization. Seek consensus whenever organizational maturity is assessed at different levels. Assign a midpoint score when adjacent maturity levels appear equally appropriate.

A.2 Questionnaire for initial self-assessment

The initial self-assessment questionnaire (Table A.2) provides a first overview of the organization's maturity. There are three questions relating to each management principle. Scoring results will facilitate the selection of the principle in Clause 5 to begin the improvement process.

A.3 Questionnaire for comprehensive self-assessment

The additional value of a full comprehensive evaluation (Table A.3) should be realized when appropriate time and attention is given to the process. Taking time to develop familiarity with the maturity level descriptions, consensus discussions, clarification of meanings and other evaluation concerns adds value to the overall process. Active involvement of top management, for example through management review, demonstrates recognition and commitment to the importance of this process.

A.4 RADAR chart

The example depicted in Figure A.1 suggests that the organization should consider prioritizing actions relating to "customer focus" (5.1), and "involvement of people" (5.3).

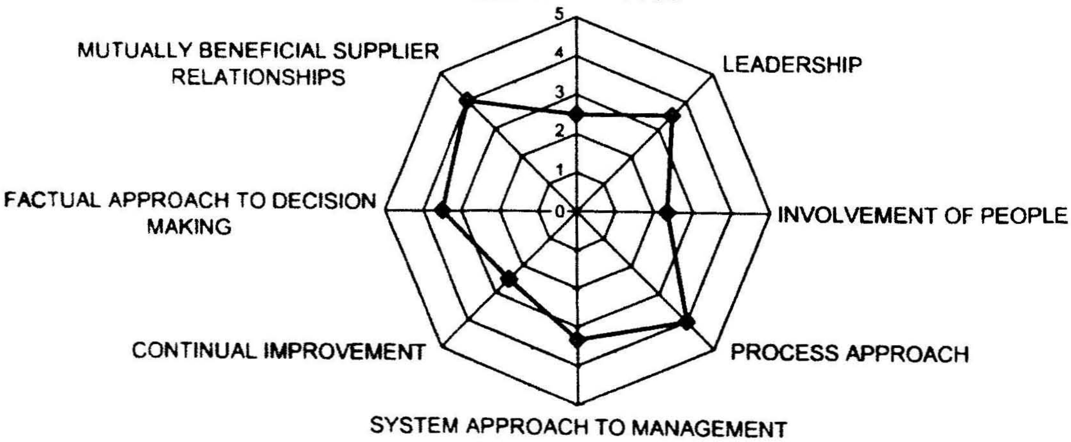


Figure A.1 — Example of a self-assessment result (average score): RADAR chart

Table A.1 — Description of maturity levels

Maturity level	Description
1	No or not true, 0 % occurrence, the practice is not found or not yet started, not much happening at all No evidence of implementation. No systematic approach is evident, no real objectives. No measurements, poor or unpredictable results. Inadequately addressing customer complaints or needs. Perhaps some good ideas but not progressed much beyond the wishful thinking stage
2	Marginally true, approximately 25 % occurrence, practice is only seen in some areas Implementation evidence available. Reactive approach, mainly to correct problems. Limited evidence of corrective action approach. Limited information or understanding of improvements required, few objectives, some good results available. Customer satisfaction reasonably addressed but small progress on satisfaction of other interested parties. Some recognition of process approach, minor evidence that something useful is really happening Occasional reviews or assessments resulting in some improvements and enhancements
3	Partially true, approximately 50 % occurrence, the practice is commonly found, but not in the majority of areas. Improvement evidence visible. Process-based approach is evident, more proactive than reactive. Establishing root causes with some good corrective actions and systematic improvements Information available on objectives and performance against those objectives, some good improvement trends. Satisfaction of interested parties generally being addressed. Evidence that subject is being addressed with moderate success, with some targeted reviews and actions. Sporadic evidence of clear improvements or enhancements, although still many concerns that subject is not addressed to its full extent.
4	Mostly true, approximately 75 % occurrence, the practice is very typical with only some exceptions Interrelated process approach is well established in the system. Continual improvement process is well embedded within organization and key suppliers. Consistent positive results and sustained improvement trends, clear evidence that subject is well addressed Satisfaction of interested parties mostly addressed. Proactive where appropriate, corrective action evidence that recurrence has stopped, preventive actions/risk assessments clearly evident. Regular and routine reviews with clear improvements and enhancements, some subjects are not being addressed to their full extent. Evidence of sustained improvement over an extended period, for example, at least 1 year
5	Yes, true everywhere. Near or at 100 % occurrence. The practice is deployed throughout the organization with virtually no exceptions. Recognized as best-in-class, well benchmarked, strongly integrated information and improvement process (from the market end-user and throughout the supply chain). Best-in-class on all results readily demonstrated, with sustainable business assured, all interested parties satisfied. A successful, agile and innovative learning organization. All approaches relevant, successful and addressed to the full extent in all areas and in all aspects. An excellent role model. It is difficult to visualize significant improvement, but regular reviews are conducted. Evidence of sustained improvement over an extended period, for example, at least 3 years.

Table A.2 — Questionnaire for initial self-assessment

QM principle	Maturity level	Average
1. Customer focus (see 5.1)		
a) Has the organization identified the appropriate customer groups or markets for best financial and economic benefit to the organization?		
b) Has the organization fully understood customer and related supply chain needs and expectations, and identified the necessary resources to fulfil these requirements?		
c) Has the organization established measurements for customer satisfaction, and if complaints arise, are they settled fairly and in a timely manner?		
2. Leadership (see 5.2)		
a) Does top management establish and communicate the direction, policy, plans and any important information relevant to the sustainability of the organization?		
b) Does top management establish and communicate effective financial and economic objectives, providing necessary resources and feedback performance information?		
c) Does top management create and maintain the necessary environment in which people can become fully involved in achieving the organization's objectives?		
3. Involvement of people (see 5.3)		
a) Are people at all levels recognized as an important resource of the organization that can strongly impact the achievement of financial and economic benefits?		
b) Is full involvement encouraged to create opportunities to improve their competence, knowledge and experience for the overall benefit of the organization?		
c) Are people willing to work collaboratively with other employees, customers, suppliers and other relevant parties?		
4. Process approach (see 5.4)		
a) Are activities, controls, resources and outputs managed in an interrelated manner?		
b) Are capabilities of key activities and/or processes understood through measurement and analysis to achieve better financial and economic results?		
c) Does top management enable evaluation and/or prioritization of risks and address potential impacts on customers, suppliers and other interested parties?		
5. System approach to management (see 5.5)		
a) Are interrelated processes identified, understood and managed effectively to provide a system that will enable the realization of financial and economic benefits?		
b) Are resource and process capabilities and constraints understood, taking account of process interdependence?		
c) Is a systems approach employed to enable the holistic use of specific processes for the benefit of the system?		
6. Continual improvement (see 5.6)		
a) Does top management encourage and support continual improvement in order to achieve objectives for financial and economic benefit?		
b) Does the organization have effective measurements and monitoring in place to track and evaluate financial and economic benefits?		
c) Does top management recognize and acknowledge the achievement of financial and economic benefits?		

Table A.2 — **Questionnaire for initial self-assessment** *(continued)*

QM principle	**Maturity level**	**Average**
7. Factual approach to decision making (see 5.7)		
a) Are decisions effective, based on accurate factual analysis and balanced with intuitive experience where appropriate?		
b) Does top management ensure appropriate access to data, information and tools that enable effective analysis to be performed?		
c) Does top management ensure decisions are based on achieving optimum value-added benefit, avoiding improvements in one area that produce deterioration in another?		
8. Mutually beneficial supplier relationships (see 5.8)		
a) Do effective processes exist for evaluation, selection and monitoring of suppliers and supply chain partners to ensure overall financial and economic benefits?		
b) Does top management ensure development of effective relationships with key suppliers and partners that balance short-term gains with long-term considerations?		
c) Is sharing of future plans and feedback encouraged between the organization and its suppliers/supply chain partners to promote and enable mutual benefit?		

Table A.3 — Questionnaire for comprehensive self-assessment

QM principle	Maturity level	Comments and examples
1. Customer focus (see 5.1)		
Can the organization demonstrate that:		
a) it has identified the appropriate customer groups or markets for best financial and economic benefits?		
b) customer needs, expectations and requirements are fully understood?		
c) related supply chain needs, expectations and requirements are fully understood?		
d) items a), b) and c) above are managed by establishing clear objectives?		
e) objectives are effectively communicated to all affected employees?		
f) a balanced, fair approach is adopted for all customers?		
g) customer concerns and complaints are settled fairly and in a timely manner?		
h) customer satisfaction information is solicited, measured and evaluated?		
i) customer satisfaction is communicated within the organization?		
j) a stable supply chain is in place for lasting customer satisfaction?		
k) the organization provides necessary resources and fulfils its customers' requirements?		
l) the organization recognizes the need for joint development, if required?		
m) changes in market conditions, including competitiveness, are regularly reviewed?		
Maturity average		
2. Leadership (see 5.2)		
Does the organization's leadership:		
a) consider and effectively address the organization's strategy, policy and business plans to meet the needs of its customers to enable achievement of financial and economic benefits?		
b) consider and effectively address the organization's strategy, policy and business plans to meet the needs of employees to enable achievement of financial and economic benefits?		
c) consider and effectively address the organization's strategy, policy and business plans to meet the needs of its suppliers to enable achievement of financial and economic benefits?		
d) consider and effectively address the organization's strategy, policy and business plans to meet the needs of society to enable achievement of financial and economic benefits?		
e) clearly communicate vision, mission, direction, policy, plans, performance and other important information relevant to the sustainability of the organization's future?		
f) set challenging, realistic and understandable objectives for all work teams and/or individuals?		
g) create and maintain an appropriate environment to enable employees to be fully involved in the achievement of work objectives?		
h) create and maintain an appropriate environment to enable employees to be fully involved in the achievement of customer satisfaction objectives?		

QM principle	Maturity level	Comments and examples
i) create and maintain an appropriate environment to enable employees to be fully involved in the achievement of other interested parties' satisfaction objectives?		
j) establish shared values, fairness, openness and ethical role models in its dealings with suppliers?		
k) establish shared values, fairness, openness and ethical role models in its dealings with customers?		
l) establish shared values, fairness, openness and ethical role models in its dealings with society?		
m) demonstrate commitment, establish trust and eliminate fear in the organization?		
n) provide people with required resources, training and freedom to act with responsibility and accountability?		
o) inspire, encourage and recognize people's work contributions?		
p) establish unity of purpose and direction for the organization through clear and accurate communication between all levels?		
q) promote and support collaborative work groups involving employees, customers, suppliers and other interested parties?		
r) promote and reward innovation and creativity in the organization?		
s) encourage feedback and act appropriately on suggestions, including the strength and depth of feedback?		
Maturity average		
3. Involvement of people (see 5.3)		
Is it demonstrated that employees:		
a) apply their competence to achieve financial and economic benefit for the organization?		
b) effectively contribute to the development and achievement of the organization's objectives?		
c) recognize the need for innovation and creativity?		
d) understand the importance of their position?		
e) identify constraints to their performance, openly discussing problems and issues?		
f) accept ownership and responsibility to solve problems?		
g) seek opportunities to enhance their competence?		
h) freely share knowledge and experience?		
i) are eager to participate and contribute in continual improvement?		
j) are willing to work collaboratively with other employees, customers, suppliers and other relevant interested parties?		
Maturity average		

QM principle	Maturity level	Comments and examples
4. Process approach (see 5.4)		
Are processes employed effectively by:		
a) defining activities necessary to achieve desired financial and economic benefits within any process?		
b) fully recognizing and managing the interrelated and interdependent activities, resources, inputs and outputs of the process?		
c) establishing clear responsibility and accountability for employees in managing key activities?		
d) understanding capabilities of key activities or processes through measurement and analysis?		
e) identifying key activities and interfaces within the organization?		
f) focusing on the relevant factors (e.g. employees, machines, methods, materials, environment) that will improve the key activities/processes?		
g) evaluating/prioritizing risks, consequences and impacts, of activities/processes on customers, suppliers and other interested parties?		
Maturity average		
5. System approach to management (see 5.5)		
Are systems employed effectively by:		
a) defining processes necessary to achieve desired financial and economic benefits within the organization's overall system?		
b) identifying, understanding and managing the interdependent processes involved in the organization's overall system?		
c) identifying, understanding and managing the effects on overall resource constraints and capabilities, taking account of process interdependence?		
d) structuring and integrating the management of processes and resources to achieve the overall organization's objectives effectively and efficiently?		
e) the optimum use of specific processes for the benefit of the whole system?		
f) understanding the roles and responsibilities necessary to achieve overall success while avoiding interface barriers?		
g) continual improvement of the overall system through appropriate measurement and evaluation, avoiding improvements in one area that might cause deterioration in another?		
h) collaboration of all relevant parties for continual improvement and increased financial and economic benefit?		
Maturity average		
6. Continual improvement (see 5.6)		
Is continual improvement achieved by:		
a) consistent, company-wide philosophy that encourages and supports continual improvement for financial and economic benefits to the organization?		
b) providing people with training in methods and tools to enabling them to achieve improvement of products and/or processes?		
c) every individual or work group in the organization having relevant and coordinated objectives, resulting in continual improvement of financial and economic benefits?		
d) having effective measurements in place to track and evaluate continual improvements of financial and economic benefits?		
e) selecting and evaluating appropriate improvement ideas for implementation suitable to achieve financial and economic benefits?		
f) acknowledging and celebrating improvements in achieving financial and economic benefits?		
Maturity average		

QM principle	Maturity level	Comments and examples
7. Factual approach to decision making (see 5.7)		
Are decisions reached by:		
a) making available necessary data and information in order to enable achievement of financial and economic benefits?		
b) ensuring data and information are reliable and accurate?		
c) providing access to data, information and tools that enable key analysis to be performed effectively (e.g. financial and economic reviews, demand forecasting, planning, performance measurement and process analysis)?		
d) ensuring data and information are capable of indicating the effects of interrelationships between processes to avoid the problem of an improvement in one area that causes deterioration in another?		
e) making decisions and taking actions based on factual analysis, balanced with experience and intuition when necessary?		
Maturity average		
8. Mutually beneficial supplier relationships (see 5.8)		
Are they achieved by:		
a) an effective process for evaluation, selection and monitoring of suppliers and supply chain partners to ensure overall financial and economic benefits?		
b) effective communication between its supply chain partners, recognizing the interdependence between them, the organization and their customers?		
c) establishing relationships that balance short-term gains with long-term considerations, perhaps establishing joint development and improvement activities where necessary?		
d) the organization sharing information and future plans with its suppliers and supply chain partners, where appropriate, for mutual benefit?		
e) recognizing achievements and improvements, particularly those inspired by the supplier or supply chain partners?		
f) providing performance feedback to suppliers and supply chain partners?		
g) receiving regular feedback on the organization's own performance from their suppliers and supply chain partners?		
h) the organization working with suppliers and supply chain partners to reduce costs and provide additional financial and economic benefits to customers and other interested parties?		
Maturity average		

Annex B
(informative)

Brief summaries of methods and tools referenced in Clause 5

The key objective of this annex is to provide brief summaries of commonly used methods and tools for realizing financial and economic benefits. It is not intended to be an exhaustive list or give full definitions. More information can be obtained from literature or searched for on web sites.

Methods and tools	Brief summary
Activities-Based Costing (ABC)	Cost accounting system that accumulates cost-based data on activities performed and then uses cost drivers to allocate these costs to products or other bases, such as customers, markets, projects.
Activities-Based Management (ABM)	Management system that uses an accounting system as the managing factor to allocate costs to products based on resources used to produce the product.
Advanced Product Quality Planning (APQP)	Method to develop a product quality plan that will support development of a product or service with the main objective of customer satisfaction. Phases include plan and define programme, product design and development verification, process design and development verification, and product and process validation.
Assessment	Activity based on reviewing the perception of performance; to identify improvement opportunities and possible areas of strength for potential best practice deployment across an organization.
Audits	Systematic, independent and documented process for obtaining audit evidence (records, statements of fact and other information that is verifiable) and evaluating it objectively to determine the extent to which audit criteria (set of policies, procedures or requirements) are fulfilled. This may include system, process or product audits. (See ISO 19011.)
Authority matrix	Matrix that contains one or more of the following items: a list of activities, person to whom it is delegated, the date of delegation, comments/restrictions/guidance, obligation authority threshold, and resource management responsibility.
Balanced scorecard	Measurement tool that uses four perspectives (financial, customers, internal business processes, and learning and growth) of both past and future performances to provide a basis for strategic measurement and management. Other scorecards exist (e.g. one uses results categories from business excellence models as the four perspectives). Cascaded levels are used.
Benchmarking	Method to compare the processes and features of the products and services of an organization with those of recognized leaders to identify opportunities for improvement.
Bottleneck management	Method to identify bottleneck activities within an activity, process or system with the smallest capacity relative to the demand, thereby controlling the speed of the entire system/organization. See also "Theory of constraints".
Brainstorming	Activity designed to stimulate open, free-flowing and creative thought within a group. Often used as an aid in planning and problem solving.
Bulletin boards	System (electronic, paper or other media) that enables users to send or read messages, files, and other data that are of general interest and addressed to no particular person.

Methods and tools	Brief summary
Business continuity planning	Planning used to counteract interruptions to business activities and to protect critical business processes from the effects of disasters (natural or man-made) and to ensure timely resumption of business activities.
Business excellence models	For examples refer to Malcolm Baldrige National Quality Award (MBNQA)
Call centres	Function where customer service agents (telephone operators) make and receive calls in accordance with an organization's objectives.
Capability study	Study conducted to determine the statistical measure of the natural process variability assuming a set of characteristics (Cp, Cpk, Ppc).
Competence enhancement and assessment planning	Planning used to assess employee knowledge and determine how to assist them in expanding their competence. Often linked to regular employee appraisals and empowerment of people.
Competence matrix	Matrix containing one or more of following items: work task/minimum or maximum competence breadth/acceptable competence/defined competence grades.
Contingency planning	Planning of actions designed for managing unexpected circumstances or events.
Control of nonconformities	Process managing non-fulfilment of specified requirements/laws/standards/ rules.
Corrective action	Process to remove root causes of an existing nonconformity, defect or other undesirable situation in order to prevent it from happening again.
Cost avoidance	Control activity analysing "poor quality cost" expended to prevent errors from being made; the activity is an investment for the future.
Cost-benefit analysis	Tool used to analyse and compare the monetary cost of implementing an improvement and the monetary value of the benefits achieved by improvement.
Critical Path Method (CPM)	An activity-oriented project management technique that uses arrow-diagramming to show the cost and time necessary to complete a project. Only one time estimate is used: normal time.
Customer focus groups	A practice to select groups from a wider population to sample, as by open discussion, members' opinions about particular subjects or areas, used especially in market research.
Customer Relationship Management (CRM)	Process for controlling an organization's knowledge of their customers' unique requirements and expectations, and using the information to build customer satisfaction, retention and loyalty.
Customer satisfaction survey and feedback analysis	Review and analysis process to find out true levels of customers satisfaction with product/service received, based on their feedback solicited by the organization.
Dashboard/Traffic lights	Tool used for colourful pictorial representation of critical performance measures. Typically, green means: all is well, no action needed; amber means: warning may need action; red means: action needed. Often used in combination with scorecards and to improve meeting efficiency.
Design of Experiments (DOE), such as Taguchi	Statistical method for the study, analysis and comprehension of the variability of processes and data to enable improvement and more rapid developments. (See ISO/TR 10017.)
Economic Value Added (EVA)	A financial performance measure used to evaluate an organization's *true* profit. The primary focus is the wealth of the shareholder. (Operating Profit After Tax) – (Total Capital Employed × Cost of Capital) = EVA.

Methods and tools	Brief summary
Electronic Data Interchange (EDI)	Process to exchange standardized document forms between computer systems of different companies (or between customers and suppliers) for business use. EDI is part of electronic commerce, where customers can place orders directly with a supplier and the supplier provides confirmation (including ship date and price) through electronic means.
Employee satisfaction/ perception surveys	Method of receiving feedback from an organization's employees on their satisfaction.
Enterprise Resource Planning (ERP)	Software program that integrates all departments and functions across an organization onto a single computer system that can serve all those different departments' particular needs.
Failure Modes and Effect Analysis (FMEA)	Method for risk prioritization and taking of preventive action aimed at risk reduction.
First article	Processes connected with production of the first (or first series) of item(s) produced during a production run.
Flow charting and process mapping	Graphical representation of the major steps in a process, product realization or service.
Help desks	Function for technical support or assistance provided by the organization.
Internet and intranet communication	System for handling electronic information, e-mail, World Wide Web, etc.
Job design	Design of work to increase employee performance (e.g. job enlargement to increase use of employee skills), increasing the variety of work performed and providing the individual with greater autonomy.
Knowledge management	Activity of transforming data into information by creating, expanding, storing, retrieving and disseminating intellectual capital.
Lean manufacturing practices	Tool focusing on reducing cycle time and wastage to improve operations. Lean thinking is the dynamic, knowledge-driven, and customer-focused process through which all people in a defined enterprise continuously eliminate wastage with the goal of creating value.
Life Cycle Costing (LCC)	Expense tracking for a span of time from the product's creation to the end of its intended use and destruction. (See IEC 60300-3-3.)
Management by objectives	Method mainly focused on improvement opportunities through measurable employee involvement to ensure business plans are fulfilled effectively. Management establish top-level objectives that are Specific, Measurable, Appropriate, Realistic and Timely (SMART). These are cascaded and developed through and across organizational levels. Objectives performance reviews take place on a regular basis to ensure progress, completion, necessary modifications to actions/objectives and raising of new appropriate objectives to address change. Some organizations link objectives performance to rewards/appraisals.
Management review	Periodic activity by top management to decide appropriate action through the assessment of status, adequacy, efficiency and effectiveness of the organization and its management systems. (See Bibliography for some ISO management system standards.)
Market surveys and analysis	Method of receiving feedback from an organization's customers on their satisfaction with the organization's products.
Material Requirements Planning (MRP)	Method that assists a company in the detailed planning of its production.
Mentoring	Method based on trusting counsellor or teacher, especially prevalent in occupational settings.

Methods and tools	Brief summary
Newsletters	Periodically published work containing news and announcements on some subject. Newsletters may be circulated via e-mail or on an intranet.
On-the-Job Training (OJT)	Training conducted, usually at the workstation or work site. Typically, on-the-job training is done one-to-one or in a small group.
Open Book Management (OBM)	Management activity that "opens" the organization's financial information to its employees. The organization may also provide instruction in interpreting the information. The objective is to enable employees to better understand their role and impact on the organization.
Organizational Development (OD)	Strategic activity aimed at increasing organizational effectiveness through the development and reinforcement of organizational strategies, structures and processes.
Pareto analysis	Statistical process that produces a bar chart organized from higher to lower levels of frequency. The Pareto diagram compares the importance of the different factors intervening in a problem and helps to identify action priorities.
Payback Period (PP) analysis	Review of the amount of time it will take to recover the initial investment of a project.
Performance appraisals	Tool used to measure employees' progress against performance standards. Feedback is also provided at this time.
Pie chart	A circular graph (shaped like a pie) that is divided by radii to depict the proportion of the variables; also called a pie diagram.
Plan-Do-Check-Act (PDCA)	Refer to Clauses 4 and 5.
Prevention, appraisal and failure costing	Method that broadly identifies costs into the three categories that help focus on and review progress on improvement; particularly important for financial and economic benefits.
Preventive action	Process for taking action to remove the root cause(s) of a potential nonconformity, defect or other undesirable situation in order to prevent occurrence. This is proactive action.
Production Part Approval Process (PPAP)	A parts approval process that is required for suppliers to manufacturers as well as tier one suppliers.
Professional development	An employee tool. A plan is created with the employee and his/her supervisor or mentor that utilizes the employee's needs and objectives, matching them with organizational needs.
Quality Function Deployment (QFD)	Method that seeks to relate the design of products and services to customer needs.
Response and complaint handling	Process of reacting to customer complaints and issues while protecting market share. (See ISO 10002.)
Responsibility matrix	Matrix or chart that lays out the major activities and details the responsibilities of each party involved. With this tool, all involved can see clearly who to contact for each activity.
Return on Investment (ROI) analysis	Activity to evaluate the investment potential by comparing the magnitude/timing of expected gains to the investment costs: [(gains − costs) / costs] × 100 %.
Risk analysis	Tool used to identify and control risks associated with any item, activity, process or system of an organization. This should ideally be proactive in nature although unfortunately serious events can trigger the analysis.

Methods and tools	Brief summary
Self-assessment	Activity based on reviewing perception of performance; to identify improvement opportunities and possible areas of strength for potential best practice deployment across an organization. For the specific self-assessment tool designed to enable identification and prioritization for the realization of financial and economic benefits, refer to Annex A.
Service agreement	Agreement between the provider and the customer, outlining what post-sale care will be given to the customer, at what rate, and for how long.
Statistical Process Control (SPC)	The use of statistical techniques and/or statistical or stochastic control algorithms to achieve one or more of the following objectives: — to increase knowledge about a process; — to steer a process to behave in the desired way; — to reduce variation of final-product parameters, or in other ways improve performance of a process. (See ISO/TR 10017 and ISO 11462-1.)
Strategic planning	Vision, mission, purpose and place in the market. Often utilizing SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). Latest iteration of strategic planning is expressed as "open community", wherein the organization continually updates their strategic thinking.
Strengths, Weaknesses, Opportunities and Threats analysis (SWOT)	Process to identify the strong and weak points of an organization, along with external threats and opportunities (often portrayed graphically).
Succession planning	Planning, training and mentoring potential successors for replacement of the present job holders within an organization.
Suggestion programme	Programme that elicits individual employee's suggestions on improving work or the work environment.
Supplier performance evaluations	Tool used to gauge a provider's (of products to the organization) performance against expectations.
Supplier ranking list	List that places providers of goods and services in order of priority, immediacy, added value or other criteria.
Supply base management	Process of monitoring and evaluating raw materials and related suppliers quality and performance by eliminating waste, eradicating quality problems, and streamlining the manufacturing process.
Team building	Practice to select and motivate a group of individuals to work together to accomplish a purpose and specific performance objectives.
Theory of Constraints (TOC)	Techniques and tools for identifying and eliminating the bottlenecks in a process. It gives guidance on why system constraints happen, as well as what to do about them.
Trend analysis	Analysis of data to identify a tendency or direction over time.
Trend graphs	Pictorial representation of data over time to identify a tendency or direction.
Value management	Systematic application of recognized techniques, which identify the functions of the product or service, establish the worth of these functions, and provide the necessary functions to meet the required performance at the lowest overall cost.

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[9] ISO 19011, *Guidelines for quality and/or environmental management systems auditing*

[10] ISO/IEC 17799, *Information technology — Security techniques — Code of practice for informatio security management*

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[12] ISO/IEC 15288, *Systems engineering — System life cycle processes*

[13] IEC 60300-3-3, *Dependability management — Part 3-3: Application guide — Life cycle costing*

[14] EN 12973, *Value management*

[15] ISO/TC 176/SC 2 544, *Guidance on the Concept and Use of the Process Approach for Management Systems*

[16] ISO/TC 176/SC 2, *Quality management principles brochure*

(Continued from second cover)

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 11462-1 : 2001 Guidelines for implementation of statistical process control (SPC) — Part 1: Elements of SPC	IS 15202 (Part 1) : 2002 Guidelines for implementation of statistical process control (SPC): Part 1 Elements of SPC	Identical
ISO 14001 : 2004 Environmental management systems — Requirements with guidance for use	IS/ISO 14001 : 2004 Environmental management systems — Requirements with guidance for use	do
ISO/IEC 17799 : 2005 Information technology — Security techniques — Code of practice for information security management	IS/ISO/IEC 17799 : 2005 Information technology — Security techniques — Code of practice for information security management	do
ISO 19011 : 2002 Guidelines for quality and/or environmental management systems auditing	IS/ISO 19011 : 2002 Guidelines for quality and/or environmental management systems auditing	do

In addition to the above informative references, there are certain other International Standards and Guidelines, for which no Indian Standards exist. The technical committee responsible for the preparation of this standard has reviewed the provisions of the following International Standards and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO/IEC Guide 73	Risk management — Vocabulary — Guidelines for use in standard
ISO/IEC 15288	Systems engineering — System life cycle processes
IEC 60300-3-3	Dependability management — Part 3-3: Application guide — Life cycle costing
EN 12973	Value management
ISO/TC 176/SC 2 544	Guidelines on the concept and use of the process approach for management systems
ISO/TC 176/SC 2	Quality management principles brochure

Annex A of this standard is for information only.

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